
**Paediatric Advanced Practice Nursing**

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**5- 10 key Highlights of Article**

1. Internationally, the establishment of advanced practice nursing roles has occurred over the past 50 years in an ad hoc manner, dependent on the needs within particular regions and health care facilities.

2. The term “advanced practice nursing” is a broad term encompassing several roles that have various titles. The most common titles are: nurse practitioner (NP), clinical nurse specialist (CNS), nurse anesthetist and nurse midwife.

3. CNS and NP education is typically provided at the graduate level.

4. Paediatric NPs and CNSs work in a variety of community and hospital settings, such as hospital clinics, private paediatric practices, intensive care units and emergency departments and care for patients with all types of needs.

5. Paediatric NPs are performing invasive procedures such as lumbar punctures, chest tube insertions, endotracheal intubation and central line placement. The literature indicates
that they are capable and safe to do these procedures, when given appropriate training and initial supervision. Additional research is needed regarding the effectiveness of paediatric CNS roles.

6. Countries such as France, that are considering the implementation of paediatric NP and CNS roles are advised to follow an established process to determine health care needs and the best roles to meet those needs. A process that is being used in a variety of settings and countries is the participatory, evidence-based, patient-focused process for advanced practice nursing (APN) role development, implementation, and evaluation, the PEPPA framework.

7. Consistency in role titles and definitions and clear role expectations will facilitate planning, implementation and evaluation of the new role.

8. Based on the experiences of other countries, graduate level education is recommended for new advanced practice nursing roles.

9. Prevalent needs that might be addressed by advanced practice nurses include chronic disease management and/or health promotion.

10. Advanced practice roles offer exciting opportunities for improvements in patient care and professional growth for nurses.
Abstract

This paper presents a review of the literature regarding the development of the paediatric NP and CNS roles; the education requirements in four countries where these roles are established; effectiveness of the paediatric NP and CNS roles within some settings in which they practice; and makes recommendations for the development of paediatric advanced practice nursing roles in countries that are considering implementing advanced practice nursing roles.
Introduction

Key elements of health care reform to advance the quality of care in France include increased emphasis on health promotion and disease prevention, improved access to care, and enhanced chronic disease management. An important component of this reform is the use of multidisciplinary teams that include nurses working in advanced practice roles (1;2). The term “advanced practice nursing” is a broad term (3) encompassing several roles that have various titles (4). The most common titles are: nurse practitioner (NP), clinical nurse specialist (CNS), nurse anesthetist and nurse midwife (5). The Nurse Practitioner/Advanced Practice Network of the International Council of Nurses (6) defines a nurse practitioner and/or advanced practice nurse as, “a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A Master’s degree is recommended for entry level.” The NP and CNS are the most common paediatric advanced practice nursing roles and are the subject of this paper. These two roles will be described in general terms related to role responsibilities, as titles and definitions of these roles vary within and across countries (7;8).

This paper presents a review of the literature regarding the development of two common advanced practice nursing roles in paediatrics, specifically the paediatric NP and CNS roles; the education requirements in four countries (the United States, Canada, United Kingdom and Australia) where these roles are established; effectiveness of the paediatric NP and CNS roles within some settings in which they work; and makes recommendations for the development of paediatric advanced practice nursing roles in countries, such as France, that are considering implementing advanced practice nursing roles.

Background
The NP role provides a variety of services that have traditionally been performed by physicians. For example, NPs assess, diagnose and manage acute and chronic conditions; prescribe drugs; and order laboratory and diagnostic imaging tests (6;9;10). The NP role reduces demands on physicians’ time and frees up the physician to care for complex cases.

The primary care setting was the first setting in which NPs worked (11). A systematic review completed when the NP role was relatively new compared NP with physician care in primary care settings (12). Horrocks et al. found the NPs had higher patient satisfaction ratings and patient health status outcomes were equal, with some improved quality of care (12). No differences were found in prescriptions, follow-up appointments or referrals; however, the NPs had slightly longer consultations (3.67 minutes) and did more investigations than the physicians.

It is important to note that in addition to primary care NPs now work across all health care settings, such as hospitals, ambulatory clinics, rehabilitation centers and chronic care.

The CNS role is usually found in hospitals or chronic care, where CNSs promote quality improvement initiatives and provide nursing leadership and education to support high standards of nursing care and patient safety (6;13). Core components of the CNS role include clinical practice, education, research and leadership (1). Clinical expertise in a specialized area of practice, such as paediatrics, is a key characteristic of the CNS role. The use of advanced practice nursing skills to provide care for patients and families with complex needs is a critical feature of both the NP and CNS roles.

Literature Search

A review of the literature was conducted in CINAHL, Medline, PubMed, and Web of Science. The search terms included “advanced practice nurs*”, “nurse practitioner”, “clinical nurse specialist”, “pediatric*”, “child*”. The search was from the beginning of each database to
December of 2010 and restricted to the English language. Relevant articles were identified and representative documents are reported in this paper. Information was also obtained through professional organizations, academic settings and government websites.

**Development of Advanced Practice Nursing Roles in Paediatrics**

Internationally, the establishment of advanced practice nursing roles has occurred over the past 50 years in an ad hoc manner, dependent on the needs within particular regions and health care facilities (4). The NP and CNS roles emerged in Canada and the United States in the 1960s, the United Kingdom in the 1970s and 80s, and Australia for the CNS role in the late 1980s and the NP role in 2001 (4;14-16). Worldwide, the first NP education program was in the 1960s and focused on paediatrics (17-19). These early paediatric NPs worked in primary care and paediatrician offices. Nearly 30 years later, acute care paediatric NP education programs were established and the graduates began working in critical care areas in hospitals in the mid-1990s (20).

The CNS role was introduced to support and improve the quality of nursing care at a time of increasing specialization, technology, patient acuity and complexity of health care (14). A PhD program at the University of Pittsburgh was the first reported CNS program to offer specialization in maternity and paediatrics (21). The earliest paediatric CNSs worked in hospitals. The first literature identified regarding the paediatric CNS was published in 1970 and described the early role (22). Opportunities for CNSs to obtain certification in paediatrics have been offered for a number of years in the United States (p. 154-155) (23). Certification is an additional test with ongoing educational requirements to ensure that the paediatric CNS has demonstrated and maintains up-to-date knowledge regarding practice standards. Worldwide, the first paediatric advanced practice nurse association, the Association of Pediatric Nurse
Associates and Practitioners was formed in the United States in 1973; paediatric nurse practitioners were first certified in 1977 (24).

**Educational Requirements**

Education programs are vital to ensure appropriate knowledge and skills for advanced practice nurses and to provide continuing education to promote current standards of practice. Over the past 50 years, educational requirements for NPs and CNSs in the United States and Canada have generally progressed from continuing education, post-diploma or post-baccalaureate programs (25-29) to the current requirement for a master’s or doctoral degree (5;6;30). The enhanced level of education is justified by the greater volume of knowledge required to provide quality care, the increasing complexity of the health care system, nursing shortages and advances in technology. These factors may also be linked to the increased number of institutions offering nursing graduate degree programs. However, the educational requirements for NPs and CNSs vary across and within countries. For instance, the province of Ontario in Canada continues to graduate some primary health care NPs at the post-baccalaureate certificate level, while others graduate at the master’s level (29). All other specialty NP education programs in Canada are only offered at the master’s degree level. The neonatal NP is educated in a separate education program than the paediatric NP in the United States and Canada, but both countries require a graduate degree for paediatric NPs and neonatal NPs.

The United States recently recommended an increase in the educational requirement for NPs and CNSs to a doctorate in nursing practice (5). In addition to the changes in education requirements, CNSs in the United States will prescribe drugs, order laboratory and diagnostic tests and other patient care activities that were not typically associated with the CNS role in the past. In Australia, a master’s degree is required for both the NP and CNS roles (1). The United
Kingdom has a combination of certificate and master’s level NP programs and has recently developed the paediatric NP specialization (1;31). However, in the United Kingdom a first-level or bachelor degree remains the minimum qualification to become an NP or CNS, when combined with work experience and workplace training (1). Courses are offered for all registered nurses interested in expanding their scope of practice in specific areas, such as prescribing drugs.

Canada does not offer specific CNS programs (29); nursing specialization is provided by colleges at the certificate level in most provinces. Although, in 1970, the University of Toronto was the first Canadian university to offer a graduate program with a focus on clinical nursing specialization (32).

Common curriculum components for NPs and CNSs cover three areas of knowledge. Firstly, concepts and issues intrinsic to graduate nursing education are taught, such as nursing theory, research and ethics. Secondly, knowledge and skills required for advanced practice, for example pathophysiology, advanced physical assessment and pharmacology. Thirdly, knowledge and skill for specialty practice, such as paediatric cardiology, oncology or primary care (33;34).

While a paediatric NP education program was the first NP education program in the world, many paediatric NPs are currently taught in primary care NP programs, and then specialize in paediatrics in their work settings. In the United States, post-master’s degree and post-doctoral degree internships provide intense clinical practice learning for NPs and CNSs in paediatric specialty roles.

**Effectiveness of NPs and CNSs in Various Practice Settings**

Paediatric NPs and CNSs work in a variety of community and hospital settings, such as hospital clinics, private paediatric practices, intensive care units and emergency departments and care for patients with all types of needs (20;35-50). NPs counsel children and families, prescribe
medications, perform invasive procedures and a variety of other advanced practice nursing interventions, depending on the needs of patients, families and the organization in which the NP practices. The CNS also provides direct patient care, but typically the main focus of the CNS role is to provide leadership and improve quality of nursing care by consulting with and being a role model for staff nurses (51). There may be both CNSs and NPs working in the same setting. For instance, the Hospital for Sick Children in Canada developed the paediatric CNS role in the 1970s and now has both NPs and CNSs actively involved in patient care and quality improvement (52). A number of research studies have evaluated the effectiveness of paediatric NP and CNS roles and a sampling of the research that reflects typical findings is presented.

An interprofessional survey of 655 health professionals in the United States and Canada was conducted to define the NP role in neonatal intensive care units. The researchers concluded that the neonatal NP role incorporated components of both the NP and CNS roles, including advanced clinical practice, education, research and administration (53). Several studies’ findings indicate that the neonatal NP provides care equivalent to and/or better than physician residents (54-56). Lee et al. (57) determined that neonatal NPs conducting routine examinations of newborns were significantly more likely to detect abnormalities than senior house officers. As well, parent satisfaction with neonatal NP care has been found to be equivalent to care provided by physician residents (55).

Fanta et al. (58) used a randomized study in a paediatric trauma center in the United States and found equivalent patient outcomes and a dramatically reduced length of stay for injured children when monitored by the paediatric NP compared with those monitored by resident physicians. There was no increase in complications associated with the shorter length of stay and the patient outcomes were equal between the two groups. Patient/family satisfaction
with numbers of visits to the bedside and information about injuries, tests and treatments was significantly higher for those cared for by the NPs compared to resident physicians. Shebesta et al. (59) evaluated the care of trauma victims delivered by paediatric NPs versus medical residents. They found the NP care was equivalent to that of the medical residents and staff nurses were more satisfied with NP care.

In 1989, Nemes et al. (60) conducted a study of paediatric NPs caring for surgical patients in a teaching hospital in the United States. Nearly all of the surgeons (90%) reported that the NPs improved communication between the patients and physicians and 83% of the surgeons reported that the NPs did not interfere with education of the medical resident. The paediatric NPs assessed and wrote orders for patients in the hospital; provided staff, patient and family education; and assisted with policy development. An added benefit of paediatric NPs working in surgical units is their availability to provide care when the surgeon is not accessible. (18)

Paediatric NPs are performing invasive procedures such as lumbar punctures, chest tube insertions, endotracheal intubation and central line placement (61;62). The literature indicates that they are capable and safe to do these procedures, when given appropriate training and initial supervision.

While there were a number of studies that described the CNS role and program implementation, only two evaluation studies were identified. Lowes (63) evaluated the specialist nurse role when caring for children with diabetes. Findings revealed the introduction of successful home management plans, a decrease of nearly 50% in the length of stay in the hospital for those initially hospitalized, readmission length of stay guidelines were met, education sessions were initiated and there was a substantial reduction in clinic non-attendance. However, there was an increase in readmission rates for children with established diabetes.
Damato et al. (64) examined the association between the amount of time (direct and administrative) spent by CNSs with families of very low birth weight infants and infant outcomes (rehospitalizations and acute care visits) following initial discharge from hospital. “After discharge there were significant relationships between the amount of CNS direct care time and the number of acute care visits ($r = 0.45$, $p < 0.01$) and infant rehospitalizations ($r = 0.51$, $p < 0.01$)” (p. 75). The study did not show improved infant outcomes related to the amount of time spent with the infants and families. Additional research is needed regarding the effectiveness of paediatric CNS roles.

**Recommendations for the Development of NP and CNS Roles**

Countries such as France, where paediatric nurses seek recognition of their specialty in advanced practice nursing are advised to follow an established process to determine health care needs and whether the CNS or NP role is best suited to meet those needs. A process that is being used in a variety of settings and countries is the participatory, evidence-based, patient-focused process for advanced practice nursing (APN) role development, implementation, and evaluation, the PEPPA framework (65).

An examination of the patient population and current model of care is the first step in this process (65). A comprehensive needs assessment with stakeholders including paediatricians and children’s hospitals, accompanied by an assessment of health human resources and health care policies in France and Europe is critical for determining needs and if a new model of care is warranted. The next step in the process is to determine goals and the new model of care or program, and then decide if an advanced practice nursing role is needed to help meet the goals. If an advanced practice role is needed, systematic planning of implementation strategies will be crucial including regulations and legislation, remuneration, identifying outcomes and the
evaluation plan, the collection of baseline data, barriers to and facilitators of role implementation in other countries, education programs and supports for the program and administrative supports and resources. Role development will require policies and procedures and decisions regarding collaborative practice models with physicians and other health care providers. Paediatricians and children’s hospitals will be key partners and supports for educational and employment endeavors. Once the role is established and the NP or CNS has had time to become proficient in the new role, research is needed to evaluate the role and the new model of care. Evaluation over time will be important in order to ensure quality improvement and identify additional unmet needs.

Consistency in role titles and definitions and clear role expectations (8) will facilitate planning, implementation and evaluation of the new role. Based on the experiences of other countries, graduate level education is recommended. Prevalent needs that might be considered initially include chronic disease management and/or health promotion. Advanced practice roles offer exciting opportunities for improvements in patient care and professional growth for nurses. A systematic process to initiate these roles will help to ensure that the implementation is a success.
Reference List


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